

■ Scope

Thick Film Resistor Network is made by Printing and Firing the Metal Glaze on High Alumina Content Ceramic Substrates, then Trimmed by Laser Trimmer to Achieve the desired Resistance.
Lead Frame Assembled and Coated with High Grade Epoxy.

■ Features

- Miniature in Size, Applicable on High Density PCB Assembly.
- Variable Resistors Connection Resulted in Various Applications.
- Conformal Quality Performance and Excellent Reliability.
- High Accuracy and Low T.C.R.

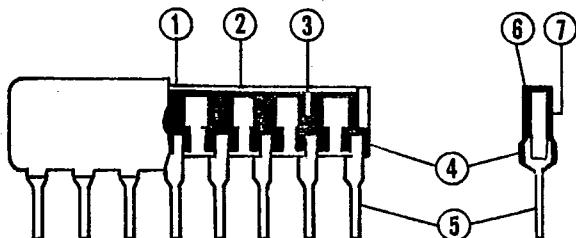
■ Circuit Configurations

- Line Terminating Resistors.
- Attenuator Circuits.
- Ladder Circuits
- Thevenin Terminal.
- Multiple- Isolated Resistors.
- Translator- Network (TTL-ECL and CMOS-ECL)
- Interface- Bused Configurations.
- Flip- Flop Circuit.
- Pullup- Pulldown Resistors
- LED Current Limiting

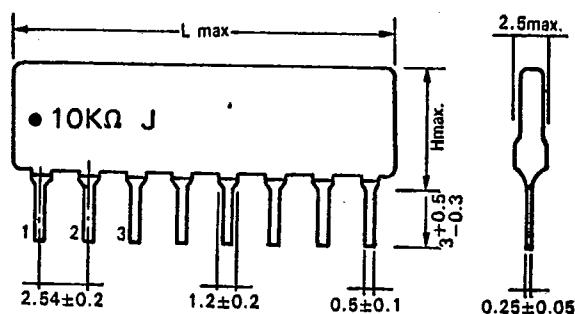
■ Physical Dimensions

Type	Pins	Length L	Hight H
RNL	4-14	2.54	5.0

■ Construction and Material



UNIT: mm



item	Descriptions	Material
1	Ceramic Substrate	96% Alumina
2	Conductive Paste	Ag-Pd Metal Glaze
3	Resistive Paste	Metal Glaze
4	Solder Joint	Solder
5	Lead Frame	Tin-Plated Strip
6	Overcoating	Epoxy
7	Marking	Ink-white

■ Ratings

Descriptions	Ratings
Pins Availability	4-14 Pins
Per-Resistor rated Power	0.125 W
Nominal Resistance Range	10 ohm-1 Mohm
Nominal Resistance Tolerance	+/- 1%, 2%, 5%
Temperature Coefficient of Resistance	+/- 100, 200 ppm
Maximum Working Voltage	100 V
Maximum Overload Voltage	150 V
Operating Temperature Range	-40 to +150 Deg.s C
Rated Ambient Temperature	70 Deg.s C

■ Characteristics

Test Item	Performance	Test Method JIS C 5202
Insulation Resistance	Over 10.000 Mohm	5.2B
Short-time Overload	+-(0.5%+0.05 ohm)	5.5 E rated* 2.5 @ 5 s
Dielectric Strength	+-(0.5%+0.05 ohm)	5.7F 500V @ 1 min.
Lead Strength-Tensile	+-(0.5%+0.05 ohm)	6.1(1) 1 Kg @ 10 s.
Lead Strength-Bend	Stand 3 Times min.	6.1(4) 250g
Soldering Heat	+-(0.5%+0.05 ohm)	6.4 260 Deg.s C @ 10 s
Solderability	Coverage 90% min.	6.5 230 Deg.s C @ 3 s
Dry Heat	+-(1.0%+0.05 ohm)	7.2 125 Deg.s C @ 100 H
Temperature Cycling	+-(1.0%+0.05 ohm)	7.4 -40/+85 Deg.s C
Endurance (Damp Heat)	+-(5.0%+0.05 ohm)	7.9 40°C/95%RH @ 1000 H
Endurance (Rated Load)	+-(5.0%+0.05 ohm)	7.10 70 Deg.s C @ 1000 H

■ Circuit Configurations— Typical

A Type	B Type	C Type
$R_1=R_2=R_3=R_n$	$R_1=R_2=R_3=R_n$	$R_1=R_2=R_3=R_n$
D Type	E Type	R Type
$R_1=R_2=R_3=R_{n-1}$ or $R_1=R_3=R_{n-1}$ $R_2=R_4=R_n$	$R_1=R_2=R_3=R_n$	$R_1=R_3=R_{n-1}$ $R_2=R_4=R_n$
P Type	S Type	T Type
$R_1=R_2=R_3=R_n$	$R_2=2R_1$ $R_1=R_3=R_{n-2}$ $R_2=R_4=R_n$	$R_1=R_2=R_3=R_{n-1}$ or $R_1=R_3=R_{n-1}$ $R_2=R_4=R_n$

※ Different R, Different Configurations are Available upon Request.